Supplementary Table 1 219 radiomic features extracted from Definiens, details of the features deferred to our prior publications[1,2]

Feature Category	Feature index	Name of the Features	Definition
C1.Tumor Size	F1	Longest Diameter [mm]	The longest straight line that can fit entirely inside the ROI.
	F 2	ShortAx-LongDia	Short Axis × Longest Diameter
	F 3	Short Axis [mm]	The shortest straight line that is perpendicular to the Longest Diameter.
	F 6	Vol-cm^3	The volume of the 3D ROI in cm.
	F 33	Area-Pxl	The number of voxels/pixels.
	F 34	Volume-pxl	The volume of the 3d ROI in voxels.
	F 35	Num-Pxl	Number of voxels inside the ROI.
	F 36	Width-Pxl	Number of voxels inside the ROI
	F 37	Thickness-Pxl	The mid-point of three eigenvalues of a rectangular 3D space enclosing the ROI.
	F 38	Length-Pxl	The smallest of three eigenvalues of a rectangular 3D space enclosing the ROI
	F 39	Length-by-Thick	The largest of three eigenvalues of a rectangular 3D space enclosing the ROI.
	F 40	Length-by-Width	Length/Thickness ratio
	F 41	Border-Leng-Pxl	Length/Width
C2. Tumor Shape (Roundness)	F 7	5a-3D-MacSpic	Number countable spiculations of tumor
	F 13	9b-3D-Circularity	Describes how circular the ROI is
	F 14	9c-3D-Compactness	Describes how compact a 3D image object is.
	F 23	Asymmetry	The more longish an image object, the more asymmetric it is.
	F 24	Compactness	A figure for the compactness of a 3D image object is calculated by a scaled product of its three eigenvalues $2*\lambda1$, $2*\lambda2$, $2*\lambda3$ divided by the number of its pixel/voxel.
	F 26	Elliptic Fit	It describes how well an image object fits into an ellipsoid of similar size and proportions.
	F 28	Radius of largest enclosed ellipse	Radius of largest enclosed ellipse.
	F 29	Radius of smallest enclosed ellipse	Radius of smallest enclosing ellipse.
	F 30	Shape-Index	The smoother the surface of an image object is, the lower its shape index.
	F 31	Roundness	Describes how much the shape of an image ROI is similar to an ellipsoid.
	F 32	Rectangular Fit	It describes how well an image ROI fits into a cuboid of similar size and proportions.
C3. Tumor Location	F 8	8a-3D-Attch-Pleural wall	Whether the nodule is attached to the pleural wall or

Feature Category	Feature index	Name of the Features	Definition
			not.
	F 9	8b-3D-Border-to-Lung	The percentage of the nodule/lesion border that is located in the lung.
	F 10	8c-3D-Border-to-Pleural wall	the percentage of the nodule/lesion border that is not located in the lung
	F 11	8d-3D-Ratio-Free-to-Attach	The ratio between the free border length and the length of the border attached to the pleural wall. The free border is the border that is not attached to the wall.
	F 12	9a-3D-FractionalAnisotropy	Fractional anisotropy of long vs. short axis
	F 15	9d-3D-AV-Dist-COG-to-Border	Average distance of center of gravity of the ROI to border.
	F 16	9e-3D-SD-Dist-COG-to-Border	Standard deviation of distance of center of gravity of the ROI to border.
	F 17	9f-3D-Min-Dist-COG-to-Border	Minimum distance of center of gravity of the ROI to border.
	F 18	9g-3D-Max-Dist-COG-to-Border	Maximum distance of center of gravity of the ROI to border.
	F 27	Main Direction	Main direction feature of a three-dimensional image ROI.
C4. Airspace	F 19	10a_3D_Relative_Volume_AirSpaces	Relation of ROI volume to air spaces volume
	F 20	10b_3D_Number_AirSpaces	Number of 3D air spaces inside the ROI
	F 21	10c_3D_Av_Volume_AirSpaces	Average of volumes of 3D air spaces inside the ROI
	F 22	10d_3D_SD_Volume_AirSpaces	Standard deviation of volumes of 3D air spaces inside the ROI
C5. Pixel Intensity Histogram	F 4	Mean [HU]	The pixel intensity histogram h(a) is the number of pixels that occurred for brightness level “a” with brightness level on the x-axis. The probability distribution of the brightness P(a) can be calculated as well.
	F 5	StdDev [HU]	
	F 25	Density	
	F 184	Histogram-Mean- Layer 1	
	F 185	Histogram -SD- Layer 1	
	F 186	Histogram -Energy- Layer 1	
	F 187	Histogram -Entropy- Layer 1	
	F 188	Histogram -Kurt- Layer 1	
	F 189	Histogram -Skew- Layer 1	
C6. Runlength and Cooccurrence	F 42	AvgCoocurrence -Homo	The Co-occurrence matrix is a matrix that contains the frequency of one gray level intensity appearing in a specified spatial linear relationship with another gray level intensity within a certain range.
	F 43	AvgCoocurrence -Mp	
	F 44	AvgCoocurrence -Constrast	
	F 45	AvgCoocurrence -Energy	
	F 46	AvgCoocurrence -Entropy	
	F 47	AvgCoocurrence -Mean	
	F 48	AvgGLN	Run-length texture features examine runs of similar

Feature Category	Feature index	Name of the Features	Definition
	F 49	AvgHGRE	gray values in an image. Runs may be labeled according to their length, gray value, and direction (either horizontal or vertical). Long runs of the same gray value correspond to coarser textures, whereas shorter runs correspond to finer textures.
	F 50	AvgLGRE	
	F 51	AvgLRE	
	F 52	AvgLRHGE	
	F 53	AvgLRLGE	
	F 54	AvgRLN	
	F 55	AvgRP	
	F 56	AvgSRE	
	F 57	AvgSRHGE	
	F 58	AvgSRLGE	
C7.Laws Texture Feature (with different convolution filters)	F 59	3D Laws features E5 E5 E5 Layer 1	Constructed from a set of five one-dimensional filters, each designed to reflect a different type of structure in the image. These one-dimensional filters are defined as E5 (edges), S5 (spots), R5 (ripples), W5 (waves), and L5 (low pass, or average gray value). 3D filters are generated by convolving 3 types of 1D filter, such as L5L5L5, L5L5E5, L5L5S5, L5L5R5, L5L5W5, etc.
	F 60	3D Laws features E5 E5 L5 Layer 1	
	F 61	3D Laws features E5 E5 R5 Layer 1	
	F 62	3D Laws features E5 E5 S5 Layer 1	
	F 63	3D Laws features E5 E5 W5 Layer 1	
	F 64	3D Laws features E5 L5 E5 Layer 1	
	F 65	3D Laws features E5 L5 L5 Layer 1	
	F 66	3D Laws features E5 L5 R5 Layer 1	
	F 67	3D Laws features E5 L5 S5 Layer 1	
	F 68	3D Laws features E5 L5 W5 Layer 1	
	F 69	3D Laws features E5 R5 E5 Layer 1	
	F 70	3D Laws features E5 R5 L5 Layer 1	
	F 71	3D Laws features E5 R5 R5 Layer 1	
	F 72	3D Laws features E5 R5 S5 Layer 1	
	F 73	3D Laws features E5 R5 W5 Layer 1	
	F 74	3D Laws features E5 S5 E5 Layer 1	
	F 75	3D Laws features E5 S5 L5 Layer 1	
	F 76	3D Laws features E5 S5 R5 Layer 1	
	F 77	3D Laws features E5 S5 S5 Layer 1	
	F 78	3D Laws features E5 S5 W5 Layer 1	
	F 79	3D Laws features E5 W5 E5 Layer 1	
	F 80	3D Laws features E5 W5 L5 Layer 1	
	F 81	3D Laws features E5 W5 R5 Layer 1	
	F 82	3D Laws features E5 W5 S5 Layer 1	
	F 83	3D Laws features E5 W5 W5 Layer 1	
	F 84	3D Laws features L5 E5 E5 Layer 1	
	F 85	3D Laws features L5 E5 L5 Layer 1	
	F 86	3D Laws features L5 E5 R5 Layer 1	
	F 87	3D Laws features L5 E5 S5 Layer 1	
	F 88	3D Laws features L5 E5 W5 Layer 1	
	F 89	3D Laws features L5 L5 E5 Layer 1	

Feature Category	Feature index	Name of the Features	Definition
	F 90	3D Laws features L5 L5 L5 Layer 1	
	F 91	3D Laws features L5 L5 R5 Layer 1	
	F 92	3D Laws features L5 L5 S5 Layer 1	
	F 93	3D Laws features L5 L5 W5 Layer 1	
	F 94	3D Laws features L5 R5 E5 Layer 1	
	F 95	3D Laws features L5 R5 L5 Layer 1	
	F 96	3D Laws features L5 R5 R5 Layer 1	
	F 97	3D Laws features L5 R5 S5 Layer 1	
	F 98	3D Laws features L5 R5 W5 Layer 1	
	F 99	3D Laws features L5 S5 E5 Layer 1	
	F 100	3D Laws features L5 S5 L5 Layer 1	
	F 101	3D Laws features L5 S5 R5 Layer 1	
	F 102	3D Laws features L5 S5 S5 Layer 1	
	F 103	3D Laws features L5 S5 W5 Layer 1	
	F 104	3D Laws features L5 W5 E5 Layer 1	
	F 105	3D Laws features L5 W5 L5 Layer 1	
	F 106	3D Laws features L5 W5 R5 Layer 1	
	F 107	3D Laws features L5 W5 S5 Layer 1	
	F 108	3D Laws features L5 W5 W5 Layer 1	
	F 109	3D Laws features R5 E5 E5 Layer 1	
	F 110	3D Laws features R5 E5 L5 Layer 1	
	F 111	3D Laws features R5 E5 R5 Layer 1	
	F 112	3D Laws features R5 E5 S5 Layer 1	
	F 113	3D Laws features R5 E5 W5 Layer 1	
	F 114	3D Laws features R5 L5 E5 Layer 1	
	F 115	3D Laws features R5 L5 L5 Layer 1	
	F 116	3D Laws features R5 L5 R5 Layer 1	
	F 117	3D Laws features R5 L5 S5 Layer 1	
	F 118	3D Laws features R5 L5 W5 Layer 1	
	F 119	3D Laws features R5 R5 E5 Layer 1	
	F 120	3D Laws features R5 R5 L5 Layer 1	
	F 121	3D Laws features R5 R5 R5 Layer 1	
	F 122	3D Laws features R5 R5 S5 Layer 1	
	F 123	3D Laws features R5 R5 W5 Layer 1	
	F 124	3D Laws features R5 S5 E5 Layer 1	
	F 125	3D Laws features R5 S5 L5 Layer 1	
	F 126	3D Laws features R5 S5 R5 Layer 1	
	F 127	3D Laws features R5 S5 S5 Layer 1	
	F 128	3D Laws features R5 S5 W5 Layer 1	
	F 129	3D Laws features R5 W5 E5 Layer 1	
	F 130	3D Laws features R5 W5 L5 Layer 1	

Feature Category	Feature index	Name of the Features	Definition
	F 131	3D Laws features R5 W5 R5 Layer 1	
	F 132	3D Laws features R5 W5 S5 Layer 1	
	F 133	3D Laws features R5 W5 W5 Layer 1	
	F 134	3D Laws features S5 E5 E5 Layer 1	
	F 135	3D Laws features S5 E5 L5 Layer 1	
	F 136	3D Laws features S5 E5 R5 Layer 1	
	F 137	3D Laws features S5 E5 S5 Layer 1	
	F 138	3D Laws features S5 E5 W5 Layer 1	
	F 139	3D Laws features S5 L5 E5 Layer 1	
	F 140	3D Laws features S5 L5 L5 Layer 1	
	F 141	3D Laws features S5 L5 R5 Layer 1	
	F 142	3D Laws features S5 L5 S5 Layer 1	
	F 143	3D Laws features S5 L5 W5 Layer 1	
	F 144	3D Laws features S5 R5 E5 Layer 1	
	F 145	3D Laws features S5 R5 L5 Layer 1	
	F 146	3D Laws features S5 R5 R5 Layer 1	
	F 147	3D Laws features S5 R5 S5 Layer 1	
	F 148	3D Laws features S5 R5 W5 Layer 1	
	F 149	3D Laws features S5 S5 E5 Layer 1	
	F 150	3D Laws features S5 S5 L5 Layer 1	
	F 151	3D Laws features S5 S5 R5 Layer 1	
	F 152	3D Laws features S5 S5 S5 Layer 1	
	F 153	3D Laws features S5 S5 W5 Layer 1	
	F 154	3D Laws features S5 W5 E5 Layer 1	
	F 155	3D Laws features S5 W5 L5 Layer 1	
	F 156	3D Laws features S5 W5 R5 Layer 1	
	F 157	3D Laws features S5 W5 S5 Layer 1	
	F 158	3D Laws features S5 W5 W5 Layer 1	
	F 159	3D Laws features W5 E5 E5 Layer 1	
	F 160	3D Laws features W5 E5 L5 Layer 1	
	F 161	3D Laws features W5 E5 R5 Layer 1	
	F 162	3D Laws features W5 E5 S5 Layer 1	
	F 163	3D Laws features W5 E5 W5 Layer 1	
	F 164	3D Laws features W5 L5 E5 Layer 1	
	F 165	3D Laws features W5 L5 L5 Layer 1	
	F 166	3D Laws features W5 L5 R5 Layer 1	
	F 167	3D Laws features W5 L5 S5 Layer 1	
	F 168	3D Laws features W5 L5 W5 Layer 1	
	F 169	3D Laws features W5 R5 E5 Layer 1	
	F 170	3D Laws features W5 R5 L5 Layer 1	
	F 171	3D Laws features W5 R5 R5 Layer 1	

Feature Category	Feature index	Name of the Features	Definition
	F 172	3D Laws features W5 R5 S5 Layer 1	
	F 173	3D Laws features W5 S5 E5 Layer 1	
	F 174	3D Laws features W5 S5 L5 Layer 1	
	F 175	3D Laws features W5 R5 W5 Layer 1	
	F 176	3D Laws features W5 S5 R5 Layer 1	
	F 177	3D Laws features W5 S5 S5 Layer 1	
	F 178	3D Laws features W5 S5 W5 Layer 1	
	F 179	3D Laws features W5 W5 E5 Layer 1	
	F 180	3D Laws features W5 W5 L5 Layer 1	
	F 181	3D Laws features W5 W5 R5 Layer 1	
	F 182	3D Laws features W5 W5 S5 Layer 1	
	F 183	3D Laws features W5 W5 W5 Layer 1	
C8. Wavelets Texture (feature at different layers)	F 190	3D Wavelet decomposition. P2 L2 C9 Layer 1	The discrete wavelet transform can iteratively decompose an image into four components.
	F 191	3D Wavelet decomposition. P1 L2 C9 Layer 1	
	F 192	3D Wavelet decomposition. P2 L2 C10 Layer 1	
	F 193	3D Wavelet decomposition. P2 L2 C11 Layer 1	
	F 194	3D Wavelet decomposition. P2 L2 C12 Layer 1	
	F 195	3D Wavelet decomposition. P2 L2 C13 Layer 1	
	F 196	3D Wavelet decomposition. P2 L2 C14 Layer 1	
	F 197	3D Wavelet decomposition. P2 L2 C15 Layer 1	
	F 198	3D Wavelet decomposition. P2 L2 C1 Layer 1	
	F 199	3D Wavelet decomposition. P2 L2 C2 Layer 1	
	F 200	3D Wavelet decomposition. P2 L2 C3 Layer 1	
	F 201	3D Wavelet decomposition. P2 L2 C4 Layer 1	
	F 202	3D Wavelet decomposition. P2 L2 C5 Layer 1	
	F 203	3D Wavelet decomposition. P2 L2 C6 Layer 1	
	F 204	3D Wavelet decomposition. P2 L2 C7	

Feature Category	Feature index	Name of the Features	Definition
		Layer 1	
	F 205	3D Wavelet decomposition. P2 L2 C8 Layer 1	
	F 206	3D Wavelet decomposition. P1 L2 C11 Layer 1	
	F 207	3D Wavelet decomposition. P1 L2 C10 Layer 1	
	F 208	3D Wavelet decomposition. P1 L2 C12 Layer 1	
	F 209	3D Wavelet decomposition. P1 L2 C13 Layer 1	
	F 210	3D Wavelet decomposition. P1 L2 C14 Layer 1	
	F 211	3D Wavelet decomposition. P1 L2 C15 Layer 1	
	F 212	3D Wavelet decomposition. P1 L2 C1 Layer 1	
	F 213	3D Wavelet decomposition. P1 L2 C2 Layer 1	
	F 214	3D Wavelet decomposition. P1 L2 C3 Layer 1	
	F 215	3D Wavelet decomposition. P1 L2 C4 Layer 1	
	F 216	3D Wavelet decomposition. P1 L2 C5 Layer 1	
	F 217	3D Wavelet decomposition. P1 L2 C6 Layer 1	
	F 218	3D Wavelet decomposition. P1 L2 C7 Layer 1	
	F 219	3D Wavelet decomposition. P1 L2 C8 Layer 1	

Supplementary Table 2 Radiomic features included in final analysis

Feature Category	**Feature index**
C1.Tumor Size (n=5)	F 1, F 2, F 3, F 37, F 40
C2. Tumor Shape (n=9)	F 7, F 13, F 14, F 23, F 26, F 28, F 29, F 30, F 32
C3. Tumor Location (n=7)	F 8, F 10, F 15, F 16, F 17, F 18, F 27
C4. Airspace (n=3)	F 20, F 21, F 22
C5. Pixel Intensity Histogram (n=8)	F 4, F 5, F 184, F 185, F 187, F 188, F 189, F 25
C6. Runlength and Cooccurrence (n=5)	F 44, F 46, F 47, F 48, F 58
C7.Laws Texture Feature (n=34)	F 60, F 68, F 73, F 81, F 84, F 87, F 90, F 92, F 97, F 100, F 101, F 104, F 108, F 116, F 117, F 122, F 125, F 126, F 133, F 135, F 139, F 140, F 141, F 142, F 145, F 146, F 155, F 161, F 164, F 165, F 168, F 180, F 181, F 183
C8. Wavelets Texture (n=15)	F 191, F 199, F 207, F 208, F 209, F 210, F 211, F 212, F 213, F 214, F 215, F 216, F 217, F 218, F 219

Supplementary Table 3 Characteristics of patients

Clinicopathological features		All patients (n=187)
Gender		
	Male	77 (41.2%)
	Female	110 (58.8%)
Age		
	Median (range)	59 (30-80)
Smoking history		
	Smokers	77 (41.2%)
	Non-smokers	110 (58.8%)
Histological subtype		
	Minimally invasive adenocarcinoma	3 (1.6%)
	Acinar predominant	79 (42.2%)
	Lepidic predominant	50 (26.7%)
	Papillary predominant	14 (7.5%)
	Micropapillary predominant	10 (5.3%)
	Solid predominant	28 (15%)
	Variants of invasive adenocarcinoma	3 (1.6%)
Pathological Stage		
	I	145 (77.5%)
	II	14 (7.5%)
	III	23 (12.3%)
	IV	5 (2.7%)

Supplementary Table 4 Univariate analysis of the relationship between radiomic features and pathologic nodal involvement

Feature	*p*-value	Odds Ratio			AUC	*q*-value
		Point	95% CI			
			Lower	Upper		
F142	0.053	0.64	0.40	1.01	0.59	0.25
F17	0.06	1.41	0.99	2.00	0.62	0.25
F189	0.06	0.70	0.48	1.02	0.58	0.27
F164	0.07	0.64	0.39	1.03	0.58	0.27
F184	0.09	1.46	0.95	2.24	0.59	0.34
F68	0.10	0.68	0.44	1.07	0.56	0.36
F215	0.10	0.55	0.27	1.12	0.62	0.35
F140	0.10	0.65	0.39	1.09	0.56	0.34
F2	0.10	1.32	0.94	1.84	0.62	0.34
F58	0.11	0.26	0.05	1.38	0.62	0.36
F116	0.12	1.32	0.93	1.88	0.63	0.36
F209	0.12	0.69	0.43	1.10	0.60	0.36
F21	0.12	0.00	0.00	5.53	0.62	0.35
F3	0.13	1.32	0.92	1.88	0.62	0.35
F20	0.13	0.69	0.43	1.11	0.59	0.34
F46	0.13	0.75	0.52	1.09	0.57	0.34
F60	0.14	0.73	0.48	1.11	0.56	0.36
F73	0.15	1.30	0.91	1.86	0.60	0.36
F22	0.17	0.35	0.08	1.56	0.57	0.40
F90	0.19	1.22	0.91	1.65	0.61	0.43
F210	0.20	0.74	0.47	1.17	0.59	0.45
F146	0.21	1.23	0.89	1.71	0.64	0.46
F181	0.22	1.25	0.88	1.79	0.60	0.46
F214	0.22	0.76	0.50	1.18	0.61	0.45
F7	0.22	3.13	0.50	19.47	0.52	0.45
F92	0.26	0.75	0.46	1.24	0.53	0.52
F133	0.27	1.22	0.86	1.73	0.61	0.53
F29	0.30	1.21	0.84	1.75	0.56	0.56
F87	0.30	0.80	0.52	1.22	0.52	0.56
F207	0.31	0.81	0.53	1.22	0.59	0.56
F8	0.31	1.47	0.70	3.09	0.55	0.56
F218	0.33	0.78	0.48	-	0.62	0.57
F155	0.33	0.81	0.54	1.23	0.53	0.57
F28	0.34	0.82	0.55	1.23	0.55	0.56
F81	0.34	1.18	0.84	1.68	0.58	0.56
F212	0.40	0.81	0.49	1.32	0.53	0.65
F126	0.43	1.14	0.82	1.58	0.63	0.68
F217	0.45	0.85	0.56	1.30	0.53	0.69

Feature	*p*-value	Odds Ratio			AUC	*q*-value
		Point	95% CI			
			Lower	Upper		
F168	0.45	0.86	0.57	1.28	0.51	0.69
F161	0.45	1.15	0.80	1.64	0.56	0.68
F122	0.46	1.13	0.82	1.56	0.64	0.68
F180	0.47	0.86	0.58	1.29	0.51	0.69
F13	0.48	1.14	0.79	1.65	0.53	0.68
F25	0.48	0.88	0.62	1.26	0.53	0.68
F211	0.49	0.87	0.58	1.30	0.56	0.69
F97	0.54	1.11	0.80	1.54	0.60	0.73
F84	0.55	0.89	0.61	1.31	0.51	0.74
F183	0.57	1.11	0.77	1.59	0.58	0.76
F213	0.62	0.90	0.61	1.35	0.53	0.81
F47	0.63	1.10	0.75	1.59	0.53	0.81
F10	0.65	1.08	0.76	1.55	0.54	0.82
F44	0.66	0.92	0.62	1.35	0.49	0.82
F125	0.69	0.92	0.60	1.40	0.44	0.84
F23	0.71	1.07	0.74	1.55	0.52	0.86
F26	0.72	0.93	0.65	1.35	0.50	0.85
F165	0.72	0.88	0.44	1.75	0.52	0.85
F108	0.74	1.06	0.74	1.53	0.55	0.86
F208	0.76	0.94	0.64	1.38	0.51	0.87
F101	0.76	1.05	0.74	1.50	0.56	0.87
F219	0.78	0.95	0.64	1.41	0.59	0.87
F32	0.79	1.05	0.72	1.54	0.50	0.87
F216	0.80	1.05	0.73	1.50	0.53	0.87
F117	0.83	0.96	0.65	1.42	0.44	0.90
F100	0.89	1.03	0.72	1.47	0.53	0.94
F141	0.90	1.02	0.71	1.47	0.56	0.94
F145	0.94	0.99	0.67	1.45	0.44	0.97
F40	0.95	1.01	0.70	1.46	0.51	0.97
F104	0.97	0.99	0.68	1.44	0.47	0.98
F27	0.98	1.00	0.69	1.46	0.49	0.98

Supplementary Table 5 Association between two semantic features and top 5 radiomic features

	Top 5 Radiomic Features				
	F4	F5	F18	F185	F187
Fissure Attachment	0.0004	0.0002	0.0049	<.0001	0.0001
Pleural retraction	0.13	0.16	0.73	0.25	0.10

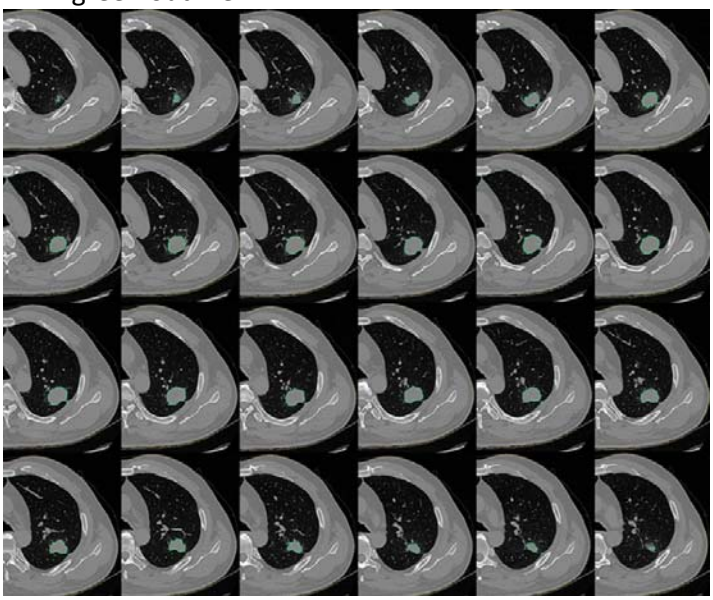
Supplementary Table 6 Multivariable logistic regression analysis of semantic features combined with radiomic features predicting nodal involvement

Feature		p-value	Odds Ratio		
			Point	95% CI	
				Lower	Upper
Pleural retraction	Absence		reference		
	Presence	0.08	0.47	0.20	1.09
Fissure attachment	Absence		reference		
	Presence	0.28	1.57	0.69	3.57
F185 (Histogram SD Layer 1)		0.0004	0.37	0.22	0.64

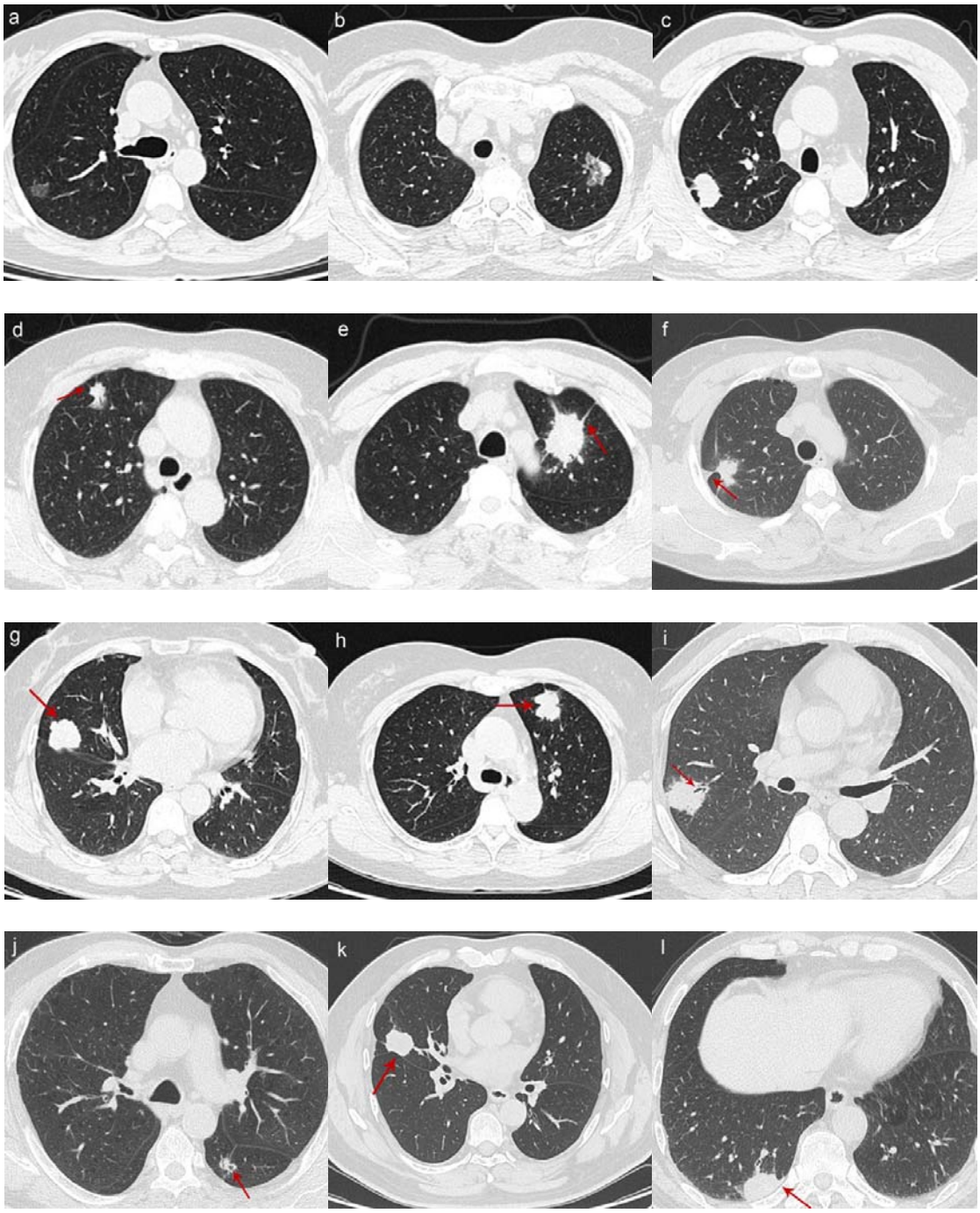
Supplemental References:

1. Balagurunathan Y, Gu Y, Wang H, et al: Reproducibility and Prognosis of Quantitative Features Extracted from CT Images. Transl Oncol 7:72-87, 2014
2. Gu Y, Kumar V, Hall LO, et al: Automated Delineation of Lung Tumors from CT Images Using a Single Click Ensemble Segmentation Approach. Pattern Recognit 46:692-702, 2013

Supplementary Figure 1 Example of CT images showing segmentation results. The tumor boundary of each slice was shown in green outline.



Supplementary Figure 2 Examples of CT images demonstrating typical semantic features: (a) pure GGO; (b) mixed GGO; (c) pure solid; (d) fine spiculation; (e) coarse spiculation; (f) pleural retraction; (g) slight concavity; (h) deep concavity; (i) air bronchogram; (j) bubble-like lucency; (k) fissure attachment; and (l) pleural attachment.



Supplementary Figure 3 Boxplots comparing the top 5 radiomic features between pathologic LN negative and positive groups. (a) F4 (Mean [HU]); (b) F5 (StdDev [HU]); (c) F18 (9g-3D-Max-Dist-COG-to-Border); (d) F185 (Histogram -SD- Layer 1); (e) F187 (Histogram -Entropy- Layer 1). Lines in boxes represent medians and the boundaries of the boxes represent lower and upper quartiles. "+" stands for outliers.